

Amendment and Response

Applicant: Wolfgang Hetzel et al.

Serial No.: 10/577,173

Filed: October 27, 2009

Docket No.: I441.141.101/QIM4346

Title: SEMICONDUCTOR DEVICE WITH PLASTIC PACKAGE MOLDING COMPOUND,
SEMICONDUCTOR CHIP AND LEADFRAME AND METHOD FOR PRODUCING SAME

REMARKS

The following remarks are made in response to the Ex Parte Quayle Office Action mailed January 19, 2011. Claims 16, 19, 22-25, 27, 30-33, 36-40 remain pending in the application and are presented for reconsideration and allowance.

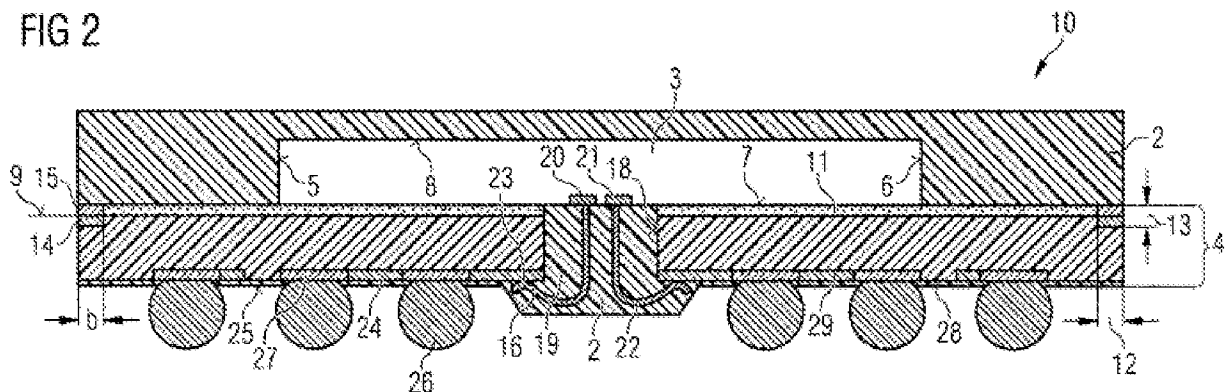
Drawing Objections

The Office Action objected to the drawings under 37 CFR 1.83(a), noting, “the drawings must show every feature of the invention specified in the claims. Therefore, the plastic molding mechanically decoupled must be shown....” Office Action at p. 2.

Claim 16, for example, recites

an elastic adhesive layer being arranged between the plastic package molding compound and the leadframe, and between the semiconductor chip and the leadframe, *configured for mechanical decoupling* of an upper region from a lower region of the semiconductor device;

Thus, the elastic adhesive layer is arranged between the plastic molding compound and leadframe so as to mechanically decouple the upper region from the lower region. Applicants respectfully submit that this feature is fully illustrated in the drawings as filed. For example, Figure 2 of the application is reproduced below.

FIG 2

As shown in Figure 2, an elastic adhesive layer 11 is situated between a leadframe 4 (lower region) and a plastic package molding compound 2 that embeds a semiconductor chip 3

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(upper region). The adhesive layer 11 does not extend to the peripheral regions of the device. A metal layer 13 is situated around the peripheral regions. Thus, the adhesive layer 11 and the metal layer 13 shown in Figure 2 separate and mechanically decouple the plastic package molding compound 2 from the leadframe 4. In this manner, the plastic package molding compound 2 and embedded chip 3 are not directly arranged or anchored on the leadframe 4, but are connected to the leadframe 4 by the adhesive layer 11 and the metal layer 13. As taught in the specification, this structure illustrated in Figure 2 functions to mechanically decouple the chip 3 and the plastic package molding compound 2 from the leadframe, which is beneficial with respect to thermal expansions of these components and associated thermal stresses. *See, e.g.*, Application Specification at p. 3, ll. 19-25; p.4, ll. 19-30 and p. 7, l. 19 – p. 8, l. 25).

As such, each element of the claims is fully illustrated in the drawings as filed. Applicants therefore believe the application is in condition for allowance.

Allowable claims

The Office Action states that claims 16, 19, 22-25, 27, 30-33, 36-38 are allowable. However, in the previous Office Action, claims 36-40 were added. Claims 16, 19, 22-25, 27, 30-33, 36-40 are therefore pending and are believed to be in condition for allowance.

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CONCLUSION

In view of the above, Applicant respectfully submits that the objection to the drawings is overcome.

No fees are required under 37 C.F.R. 1.16(h)(i). However, if such fees are required, the Patent Office is hereby authorized to charge Deposit Account No. 50-0471.

Please consider this a Petition for Extension of Time for a sufficient number of months to enter these papers, if appropriate. At any time during the pendency of this application, please charge any additional fees or credit overpayment to Deposit Account No. 500471.

The Examiner is invited to contact the Applicant's representative at the below-listed telephone numbers to facilitate prosecution of this application.

Any inquiry regarding this Amendment and Response should be directed to Mark L. Gleason at Telephone No. (612) 767-2503, Facsimile No. (612) 573-2005. In addition, all correspondence should continue to be directed to the following address:

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Respectfully submitted,

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